

Looking to the Future

What Does Transformation Mean for Military Manpower and Personnel Policy?

BETH ASCH, JAMES R. HOSEK

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Preface

This paper concerns the relationship between the military transformation now under way and the manpower and personnel policies that are needed to support a transforming force. It was prepared for the Conference on the All-Volunteer Force After 30 Years, held in Washington, D.C., on September 16–17, 2003, and should be of interest to the defense manpower policy community. The paper and the research that underlies it are part of a larger RAND Corporation project on the flexibility of military compensation, which is sponsored by the Office of Compensation, Office of the Under Secretary of Defense for Personnel and Readiness. The work was conducted within the Forces and Resources Policy Center of the RAND National Defense Research Institute, a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Chiefs of Staff, the unified commands, and the defense agencies.

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Introduction

Each decade of the All-Volunteer Force (AVF) has brought new challenges in meeting military manpower supply requirements—challenges that have been successfully met by the Department of Defense (DoD) and Congress. During the 1970s, the initial challenge was to transition from a conscripted to a volunteer force; meeting that challenge involved an unprecedented increase in military pay. The 1980s involved sustaining the volunteer force with another large increase in military pay, made necessary because military pay had been allowed to fall during the late 1970s, and expanding recruiting and retention resources such as bonuses and educational benefits. This period was also notable in that management of the recruiting effort became more sophisticated in describing local markets, motivating recruiters, and developing effective advertising programs, thereby promoting high-quality personnel at acceptable costs. The third decade, the 1990s, saw the end of the Cold War, the rise in operations other than war, and an unusually robust civilian economy that again challenged DoD's ability to recruit and retain high-quality personnel. This challenge was successfully met with another substantial increase in military pay that helped restore it to pre-boom levels relative to civilian pay, a restructuring of pay that gave larger increases to personnel who reached promotion faster, and increased recruiting and retention resources. The AVF is now at the beginning of its fourth decade. Although the future is unknown, DoD is transforming itself to ensure that it is prepared to meet possible future threats. Such transformation requires a reassessment of both the military's current manpower and personnel policies and the factors that will affect the continued success of the AVF over the next decade and beyond.

This paper provides input to that reassessment. We begin with a description of how transformation is defined in the military, drawn from statements and testimony of DoD leaders and documents such as the 2001 *Quadrennial Defense Review*. We then discuss the likely implications of transformation for military manpower requirements. Given the likely changes in military manpower goals, we then ask whether the existing military personnel management and compensation systems support those transformation-related goals. Finally, we discuss the types of personnel management and compensation policy changes that might be required.

What Is Meant by "Transformation"?

The purpose of the military's transformation effort is to ensure that it has the capabilities it needs to defend the United States against a spectrum of unknown and uncertain threats. Transformation is not a one-dimensional concept or a predetermined recipe for change. Instead it is commitment to innovative approaches to war fighting and the support of war fighters.¹

The 2001 *Quadrennial Defense Review* (QDR) outlined a new defense strategy that relies on transformation for its success. That strategy represents a shift from one that focused on specific threats and planning for two major, simultaneous wars to one focused on what the threats might be and developing capabilities to deter and defend against them. The QDR identified six major goals:

- Protect the U.S. homeland and bases overseas and defeat weapons of mass destruction and their means of delivery.
- Project and sustain power in distant environments.
- Deny sanctuary to our enemies by developing capabilities for persistent surveillance, tracking, and rapid engagement.
- Protect our information networks from attack.
- Use information technology to link different U.S. forces.
- Maintain unhindered access to space and protect space capabilities from enemy attack.

Achieving these goals will require transformational intellectual, cultural, and technological changes not only within the armed forces but within DoD as well. Defense Secretary Donald Rumsfeld has stated that transformation calls for a revolution in culture in terms of "the way we think, the way we train, the way we exercise, and the way we fight." Transformation must "encourage a culture of creativity and intelligent risk taking" and "promote a more entrepreneurial approach to developing military capabilities." As described by Chairman of the Joint Chiefs of Staff, General Richard Myers, intellectual change means that people must have "the mental agility to match their capabilities to new and unprecedented missions," and cultural change means that they must develop an "attitude that values educated risk-taking and cooperation that spans organizations" (Harper, 2003). Moreover, transformation requires change in doctrine, organization, training, and logistics, bolstered by change in technology.

¹ The appendix provides a more detailed discussion of the definition of transformation and contains complete citations for the Rumsfeld, Myers, and McCarthy quotes appearing below.

Although the definition of transformation is not tied to particular initiatives, several specific reforms have been defined as vital for future war fighting. These reforms relate to jointness in military planning and operations, improved personnel management and compensation, and improved acquisition and use of technology.

At its extreme, *jointness* means the full integration of the different service divisions, i.e., where capabilities are “born joint.” According to General James P. McCarthy (U.S. Air Force, Ret.), this integration would be achieved through joint training, the development of “tailorable” joint force modules, and the creation of a joint command and control capability to plan missions and conduct operations. Jointness would be far more prevalent, and would penetrate further into each service, than it has in the past. This concept of jointness seems consistent with the services each retaining the responsibility and authority to create and sustain specific defense capabilities but engaging jointly in planning the capabilities needed, allocating the capabilities across the services, deciding on battle plans, and tailoring the modules to be deployed (McCarthy, 2001).

A second area of reform is the management and organization of personnel to allow for greater speed and flexibility in deployment, more decentralized forces that enable subordinate commanders to exploit windows of opportunity, and greater intelligent risk-taking and innovation.

A third reform required by transformation is improving the use and acquisition of technology within the fighting forces. Although technology is already a priority, transformation will require that the force be fully connected and networked to ensure that a common picture of the battlefield is shared. Further, the military must continue to take advantage of rapidly changing technologies. Although defense officials argue that changing technology is only one part of transformation, it is clear that dramatic changes in technology are a central factor in the rationale behind and the progress of transformation.

Transformation is also expected to be an ongoing process, rather than a one-time change. It is viewed more as a framework for generating and embracing fundamental change than a process with an endpoint. Thus, it seems likely that the meaning of transformation itself, and the specific reforms that are pursued, will continue to evolve as the capabilities and challenges facing the armed forces unfold.

What Are the Implications of Transformation for Military Manpower Requirements?

A Shift from Threat-Based to Capabilities-Based Planning

A simplified characterization of the manpower requirement determination in the pre-transformation era might go as follows. The threats associated with two major theater wars would be identified in broad terms, e.g., the adversaries, their military capabilities, the types of battle (air, sea, land), and the geographic locations of battle; from this characterization, the strategy and battle plans would be devised. These would detail the roles and missions of each force, the allocation of force “building blocks” to the theaters—e.g., air wings, ships, submarines, Marine expeditionary forces, and Army divisions—and the logistics and manpower requirements would flow from these roles and missions.

Planning would thus be based on a specific set of threats, and the services would configure the design of their missions, equipment, training, and unit organization to meet those threats. Their implicit assumption is that by being conservative about the nature of the threats, they would have sufficient planning and resources to handle smaller operations, which they think of as lesser-included cases. Given unit organization (e.g., number of personnel by rank and skill) and an estimate of the numbers and types of units needed, manpower requirements would follow.

This simplified version of the planning process belies the many variants of major theater war, regional conflict, and ancillary missions that were addressed through planning exercises, field exercises, and investments in the development of doctrine and training. These activities, and the organizational human capital that accrued as successive generations of planners and leaders faced a changing national security environment, helped provide assurance that the force—and its manpower—had the capability to meet foreseeable threats on several fronts.

However, the 2001 QDR shifted the paradigm from a specified set of threats—and the assumption that if those threats could be met, then so could other threats—to meeting diverse and uncertain threats through a focus on the development of capabilities. Under capabilities-based planning, planners must decide upon a threat distribution—the types of threats and their likelihood of occurrence, singly or simultaneously. For each type of threat, planners devise robust approaches, i.e., operational plans that can surmount uncertainties as they arise in the context of the threat. Also, although specific threats are uncertain beforehand, it may be possible to anticipate types of threat and take action to deter or influence

("shape") them. Capabilities-based planning recognizes that because threats are unknowable beforehand, it is advantageous to be able to select particular capabilities from within each service and combine them into a joint response. The distinct emphasis on jointness may mark a new phase of interservice cooperation, although joint planning has occurred for decades and was directly addressed as a priority by the Goldwater-Nichols Reorganization Act of 1986. Advances in sensors, communication, situational awareness, precision-guided munitions, and command-and-control technology now enable ground, air, and sea forces to establish closer working rapport than ever before. This has enlarged the range of maneuver, increased the size of the supportable front, and permitted rapid and accurate strikes and counterstrikes, all of which contribute to a greater overall technical capability and to a growing sense of trust in joint planning and joint operations. Furthermore, technical change and cultural change (trust) appear to allow the concept of jointness to be implemented at lower and more decentralized levels of military operations. This enables the services to be more mutually reliant rather than self-reliant and increases the likelihood that tailored forces, which select units or parts of units from each service, can be created and placed under joint command without incurring the resistance and resentment of unit commanders.

Capabilities-based planning is not structured to produce a single estimate of manpower requirements conditional on a prespecified set of threats. Instead, in the new paradigm it is more productive to think of a relationship between manpower and the probability of meeting the threats in the threat distribution. For example, at a given level of manpower the predicted probability of success might be 100 percent for 60 percent of the draws, 90 percent for 30 percent of the draws, and 80 percent for 10 percent of the draws. Adding capability, e.g., adding certain types of units and the manpower to man them, increases the predicted probability of success across the identified range of threats. Capabilities-based planning therefore provides information about the level of preparedness with respect to that range of threats and may enable planners to obtain a more precise idea of the trade-offs among adding different types of units. By not focusing mainly on two major theater wars, capabilities-based planning is an effective way to assess how to support the strategic goals outlined in the 2001 QDR (mentioned in the previous section of this paper). In the end, this assessment helps support decisions about weapons investment, roles and missions, organization, and force size.

Planning may take units as preconfigured with respect to their organization, equipment, and personnel, or it may call for the reorganization of existing unit types or the creation of new unit types, as in Army light divisions, Stryker brigades, and Patriot missile units. Once the number and kind of units required have been designated, manpower requirements have also largely been designated.

Implications for Manpower Requirements and Personnel Management

As articulated by Secretary Rumsfeld, transformation will require changes throughout the defense community. Nobody knows exactly what the changes will be, but everybody knows there will be change in needed capabilities, doctrine, organization, and technology—and hence in manpower requirements. In the context of compensation and personnel policy, transformation will require innovative and flexible ways of using personnel, and personnel can expect to have different kinds of careers. Various studies and commissions have defined

what is meant by more flexible use of personnel within the context of the current compensation and personnel management systems. Some of the definitions include the following:

- More variation in the length of the military career, implying careers that extend beyond 30 years and, more controversially, careers that end before 20 years but exceed 10 years.
- Greater emphasis on conserving active duty positions for combat-essential activities—thereby increasing active duty combat and combat support personnel—and shifting non-combat-essential support to civilian contractors or DoD civilians. OSD and the services have begun to explore the opportunities for such shifts.
- Continued reliance on the selected reserves in overseas deployments and for manning domestic positions vacated by deployed active duty personnel, enhanced by development of the “continuum of service” concept whereby qualified reservists may be called to serve, or volunteer to serve, for a variable number of days in an active assignment.
- Longer time in an assignment for officers and noncommissioned officers (NCOs), allowing more time to learn a job and to capture the returns to greater job experience.¹ Longer assignments are feasible if longer career lengths are possible, or if average assignment length remains the same but some assignments are shortened while others are lengthened.
- Fewer moves, i.e., fewer permanent changes of station, which will assist in enabling longer time in an assignment and should reduce disruption in the lives of military families.
- More variation in time-in-grade and hence in-grade progression (the timing and probability of promotion), enabling members to stay in a grade longer rather than being moved up to a more supervisory grade or forced out by up-or-out constraints (this is sometimes described as the “up-or-stay” approach).
- Development of multiple career tracks for officers (as the Army has done) and NCOs to take advantage of gains from specialization and facilitate a better match between career track and individual skills and preferences. The tracks could have varying time in grade. For example, those on a leadership track may experience faster grade progression and achieve a higher grade at the end of their career. Those on a more technical track may enter at a higher grade (reflecting more civilian education) but progress more slowly through the grades.²

This proliferation of ideas and initiatives for greater flexibility in personnel management should contribute both to greater military capability and to increased member satisfaction.

¹ As experience in an assignment increases, the service member learns a variety of tasks. More time in an assignment may mean becoming specialized to the assignment but necessarily more narrow in terms of the breadth of the tasks that can be done in that assignment.

² Multiple career paths could be phased in, affecting only a small fraction of personnel at first and allowing them to choose to participate or not. This approach would prevent large disruptions to members who expect and prefer the current system. Depending on the design of a system with multiple career paths, promotion would proceed at the same rate as now, but the type of positions would be limited to those within a career path.

The greater need for flexibility and the call for more innovation and intelligent risk-taking will require a changed military culture. That transformed culture will place a premium on adaptability to emergent situations, interoperability and jointness, rapid responsiveness, agility to capitalize on opportunities in the field, and a small logistics footprint.

Culture refers to how things are done within an organization or society; it defines the tacit rules that influence actions in a wide variety of situations. Culture is rooted in a set of values, beliefs, rituals, symbols, and assumptions, and it provides a common language and common knowledge about the norms of behavior.³ By shaping behavior, culture is a strategic human resource tool that can affect performance and capability. Importantly, culture can act as a partial substitute for explicit rules of behavior under a range of uncertain circumstances. To support the goals of transformation, the values and beliefs that define military culture will have to emphasize innovation and entrepreneurship within the bounds of the military's chain-of-command environment, and will recognize the importance of flexibility in managing personnel. Furthermore, jointness and interoperability will be important norms of behavior, and innovative uses of personnel and technology will be defined and rewarded. Leaders will have a particularly important role in communicating these values and rewarding behavior that conforms to them. Strong leadership and an effective means of disseminating information about the importance of new values are critical for maintaining a culture that values innovation and entrepreneurship. Below, we discuss what types of incentives can help support innovation and cultural change.

Given the far-reaching changes suggested by transformation, a key question is whether the existing military compensation and personnel systems can accommodate these changes or whether, in fact, changes in these systems are necessary and important for achieving the goals of transformation. The current personnel management and compensation systems have shown an impressive capacity to respond to evolutionary change in the past, leading to success in attracting and retaining the quantity and quality of personnel required. As illustrated over the past three decades of the AVF, the personnel and compensation systems have helped to ensure that talented individuals are encouraged to enter and stay in the military in sufficient numbers; that personnel have the incentive to perform well, to pursue activities that develop and reveal their capabilities, and to seek positions where those capabilities are put to their best use; and that arduous duties in hazardous conditions and in places far from home are recognized.

But despite this success, policymakers and analysts have little objective information on whether personnel and compensation policies have generated a defense workforce that is equipped to embrace the creativity, risk-taking, and flexibility called for by transformation. Also lacking is an objective basis for determining whether past policies produced the right amount of flexibility and risk-taking. Such an objective standard would be valuable for assessing the gains from increases in creativity, risk-taking, and flexibility under transformation. Furthermore, as discussed in the next section, the current military compensation and personnel system, despite its many successes, seems to hamper rather than promote the flexible use of personnel and to produce remarkably similar personnel outcomes rather than

³ The importance of corporate culture is recognized in the private sector and has been the subject of numerous management studies that focus on the definition of culture, the issue of how to measure it, and its effect on a firm's performance.

greater variation in the kinds of military careers called for by transformation. The lack of personnel management flexibility in the current system has been a common theme in recent studies of the system, including the report of the Defense Science Board Task Force on Human Resources Strategy.

Are the Current Personnel Management and Compensation Systems Adequate?

Is there any reason to believe that the current systems will not provide the flexibility needed to support transformation? Does the current military culture incorporate values and norms that conform to the goals of transformation? We address those questions in this section.

The culture of the U.S. military reflects the military's historical antecedents: the nature of war fighting in the past, the geography of warfare, the purpose of war fighting (waging war for the nation-state, domestic operations, peacekeeping), and the environment in which war fighting has occurred. Because these antecedents tend to be service-specific, the most powerful cultural elements are the service branch subcultures and not the DoD culture. Various sources argue that the Goldwater-Nichols Act has done little to change the preeminence of service cultures or to form a truly joint culture.¹

The service branch subcultures reflect their assigned domain of war on land, sea, and in the air. As discussed by Builder (1989), several factors are important for defining culture across the service branches: the identity of the war fighter, the size of the service's capability, and the relative importance of technology versus personnel skill in each service. Specifically, the Air Force sees air power and the role of the pilot as the decisive elements in war. Capability is measured in terms of numbers of wings of bombers or fighters, and technology is a defining characteristic—with specific platforms, or even airframe models, being intimately connected with the notion of who the war fighter is, i.e., the pilot. The Navy also relies on technology, but personnel are more likely to associate themselves with the Navy as an institution, or with a specific community (air, ship, submarine), than with a specific ship or platform. Capability is viewed in terms of command of the high seas and is measured in terms of the stock of ships. The Army values basic skills in soldiering and war fighting over technology or equipment and often measures capability in terms of end strength, not equipment. The Marine Corps is often thought to have one of the most distinct cultures, with identity being most closely tied to being a Marine, rather than being part a specific unit. These subcultures affect the services' strategic approaches to war and how they conceptualize and prepare for war.

From a personnel standpoint, the military culture has several defining elements, as discussed by Snider (1999). *Discipline* is a critical element that helps minimize the confusion on the battlefield and that, together with *ritualization*, provides rules on how and when mili-

¹ See Adolph et al. (1995), Chiarelli (1993), Fautua (2000), and Young and Lovelace (1995). However, other authors argue that Goldwater-Nichols has had a large effect on the status of jointness, contending that the awareness of the importance of jointness seems to have increased, as have the Joint Chiefs of Staff (JCS) institutions created to support that objective (see, for instance, Roman and Tarr, 1998).

tary personnel can violate the usual social prohibitions on killing and violence. A related element is *professionalism*, which defines codes of conduct. *Cohesion* and *esprit de corps* are elements that address the issue of unit morale and the willingness of unit members to execute the unit's mission. From the standpoint of the compensation system, a key element of the culture is equitable and fair treatment with respect to pay and career opportunities. This feature reflects the common burden of service—regardless of service branch and career field—and therefore the common expectation of equitable treatment. Furthermore, equitable treatment with respect to pay and fairly applied personnel policies reflects the value of cohesion as a cultural element and recognizes the divisiveness of unfairly applied compensation and personnel policies. These cultural elements have given rise to compensation and personnel policies that are well defined, openly applied, and subject to considerable oversight by DoD and Congress.

Although these policies have been quite successful along many dimensions, they have elements that are likely to hinder transformation. An important example is the military's promotion process, which assesses performance in terms of well-defined criteria. While the system is an invaluable tool for providing performance incentives, it also arguably gives incentives to members to perform in a predictable manner that conforms to well-defined cultural norms. When there is relatively little variance in performance among promotion-eligible members and therefore relatively little variance in individual promotion chances, each member has an incentive to "play it safe." Even small mistakes or undesired outcomes arising from informed risk-taking can have serious consequences in terms of promotion timing. Frequent rotations exacerbate the climate of "zero tolerance for mistakes" because the best way to demonstrate high performance when one's duty tour is short is to follow the path of one's predecessor and conform to expectations. The lack of lateral entry and the hierarchical chain of command can also exacerbate the conformity problem because responsiveness to leadership is a cultural norm, yet those who become leaders in the chain of command achieved those positions precisely because their performance conformed to expectations. As the key incentive mechanism for high performance in the military, these pressures for predictable and uniform job behavior embedded in the promotion system are likely to hinder efforts to foster greater innovation, intelligent risk-taking, and entrepreneurship. In short, the current military culture, as reflected in the compensation and personnel systems, places a higher value on predictability and conformity than on flexibility and risk-taking.

Flexibility of the Current Compensation and Personnel Systems

As we will show, the military compensation system leads to highly similar pay by year of service (YOS) across the branches of service and across occupational areas within a service. Although this system results in a high degree of equity in compensation—and indeed equity of opportunity in compensation might be a useful policy in its own right—it is questionable whether an organization engaged in many different activities and employing many different technologies should find it efficient to have essentially the same labor-experience mix in each activity. Numerous special and incentive (S&I) pays exist that can be varied across personnel and over time, and we find that most of the variation in military cash compensation across personnel at a given year of service is attributable to variation in special and incentive pays. S&I pays provide a targeted, efficient way of increasing the level of compensation in response

to more arduous or hazardous military duties, higher market wages, or changes in those wages over the business cycle. But given available information we (and arguably, policy decisionmakers) cannot tell whether special pays are being used to maintain similarity in experience mix and promotion opportunity or to provide the best-suited experience mix for producing output. In fact, the compensation system leads to highly similar retention profiles across occupational areas.

Cash compensation for military personnel can be divided into regular military compensation,² S&I pays, bonuses, and miscellaneous allowances and cost of living allowances (COLAs).³ Average cash compensation in 1999 was around \$32,000 for enlisted personnel and \$65,000 for officers (Tables 1 and 2), and regular military compensation accounted for over 90 percent of those amounts. S&I pays, such as proficiency pay, career sea pay, parachute duty pay, and hostile fire pay, averaged \$300 to \$1,350 for enlisted personnel and \$1,000 to \$3,000 for officers. These averages may seem low, but the averages are taken over all personnel and most personnel do not receive any given S&I pay. Also, many S&I pays are not large. For instance, the average amount of proficiency pay for airmen who received it was \$2,285, but only 3 percent received it. The same was true of bonuses, miscellaneous allowances, and COLAs. For example, the average aviation officer continuation bonus in the Navy was \$12,163, but only 7 percent of Navy officers received it. The average overseas COLA for soldiers was \$1,849, but only 25 percent of soldiers received it.

Table 1
Average Amounts of Enlisted Pay, 1999

Category of Cash Compensation	Army	Air Force	Marine Corps	Navy
Regular military compensation (RMC)	\$30,509	\$31,398	\$28,241	\$30,655
Special and incentive pays	482	301	317	1,345
Bonuses	372	381	11	777
Miscellaneous allowances and COLAs	832	1,015	785	967
Total	\$32,195	\$33,095	\$29,354	\$33,744

Table 2
Average Amounts of Officer Pay, 1999

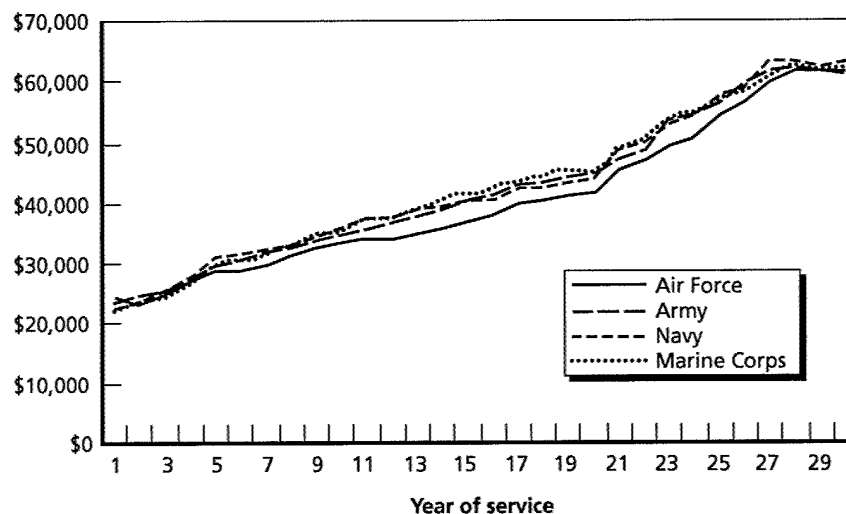
Category of Cash Compensation	Army	Air Force	Marine Corps	Navy
Regular military compensation (RMC)	\$61,689	\$61,599	\$58,707	\$59,761
Special and incentive pays	927	2,810	1,889	3,134
Bonuses	673	1,695	756	2,172
Miscellaneous allowances and COLAs	837	779	810	872
Total	\$64,125	\$66,883	\$62,162	\$65,939

² Regular military compensation is the sum of basic pay, housing allowance, subsistence allowance, and the federal tax advantage owing to the nontaxability of the allowances.

³ This discussion draws on a study by Asch, Hosek, and Martin (2002) for the 9th Quadrennial Review of Military Compensation.

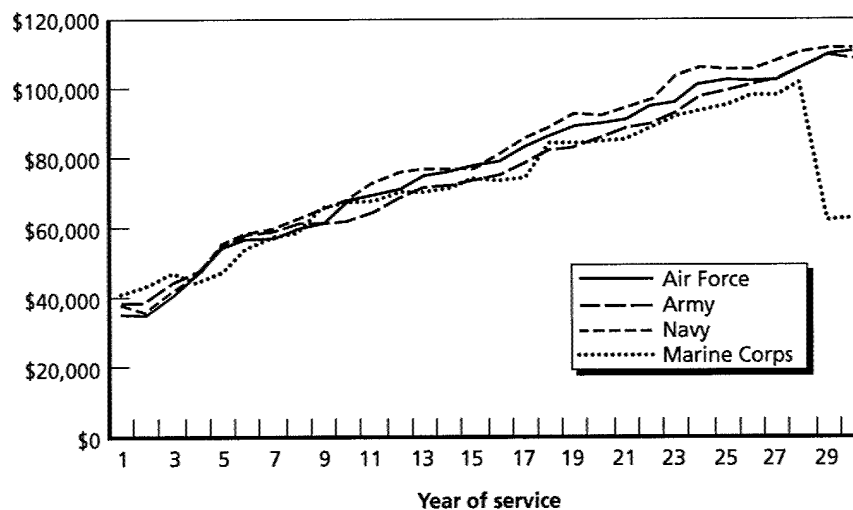
With respect to military careers, average cash compensation in 1999 rose for enlisted personnel from just over \$20,000 at entry to over \$40,000 at the 20th year, an increase of a bit more than \$1,000 per year (Figure 1). Average cash compensation increased abruptly at YOS 20, as lower ranking members exited and began drawing military retirement benefits; the remaining members had a higher average rank and received higher pay. Between YOS 20 and YOS 30, pay grew by about \$1,500 per year, topping out in the low \$60,000 range. For officers, pay rose steadily from just below \$40,000 at entry into commissioned service to about \$115,000 at YOS 30, or about \$2,500 per year (Figure 2). There was no discontinuous jump at YOS 20 because officer promotions occur within particular year-of-service intervals and because officers not promoted to the rank of major (lieutenant commander in

Figure 1
Average Total Enlisted Pay by Service and Year of Service, 1999



RAND IP108-1

Figure 2
Average Total Officer Pay by Service and Year of Service, 1999



RAND IP108-2

the Navy) at YOS 10–12 are eliminated by the up-or-out constraint. The officer promotion system leads to less variation in rank than for enlisted personnel.

Although the services share a common pay table and longevity increases are automatic, the promotion system embeds strong incentives for performance and can create pay differences among personnel in different occupations. Promotion speeds of enlisted personnel vary across the services, with the Air Force having the slowest promotion time to pay grade E-5 and the Marine Corps having the fastest, which largely accounts for the Air Force having lower average pay than the other services after the sixth year of service.⁴

Variation in enlisted pay comes mainly from S&I pays and bonuses and secondarily from differences in promotion speed. Pay variation in the Air Force in 1999, shown in Figures 3 and 4, is illustrative of that for the other services. We computed the standard

Figure 3
Standard Deviation of Enlisted Pay by Year of Service, Air Force, 1999

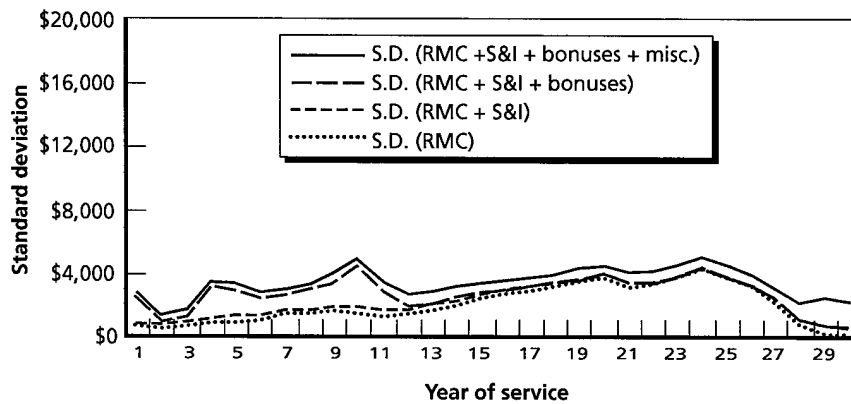
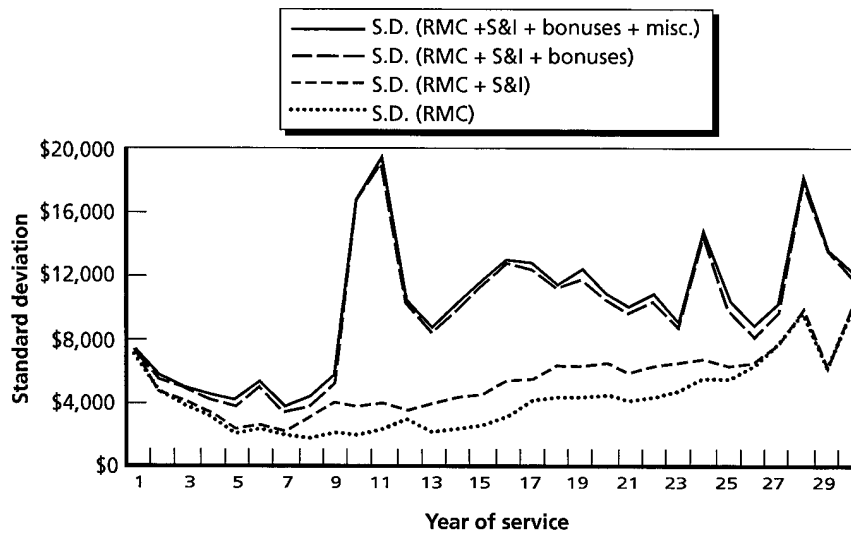


Figure 4
Standard Deviation of Officer Pay by Year of Service, Air Force, 1999



⁴ Promotion rates have been fairly stable over time for each service. See Hosek et al. (forthcoming).

deviation (S.D.) of compensation at each year of service for increasingly inclusive measures of compensation—starting with regular military compensation (RMC), adding S&I pays, then adding bonuses, and finally adding miscellaneous allowances and COLAs.

For airmen, the standard deviation of cash pay was about \$4,000. That is, pay for most airmen was the amount shown in Figure 1 plus or minus \$4,000. Much of the pay variation in the first ten years of service derived from enlistment and reenlistment bonuses. After that, the variation increasingly came from regular military compensation. Given that personnel are on a common basic pay table and would receive the same pay at a given year of service if they were all at the same rank, the variation in regular military compensation occurred because of differences in rank—some members were promoted faster, some slower. Also, the amount of the housing allowance depends on whether a member has dependents, and although most junior members did not have dependents, most career members did.⁵ The range of variation in enlisted pay can also be compared with that in the private sector. Looking across all enlisted personnel, the difference in pay between the 10th percentile and the 90th percentile at the tenth year of service was \$10,000 in 1999. In the private sector, the range of variation in pay between the 30th and 90th percentiles for men with some college was \$23,000.⁶

Among Air Force officers, pay variability rose substantially beginning in the mid-career around YOS 10. Much of this variability was due to the addition of bonuses. The major bonus categories were aviation officer continuation pay, medical officer retention bonus, incentive specialty pay for medical officers, nuclear officer accession bonus, nuclear officer retention bonus, and nuclear career annual incentive bonus. Although only a small percentage of officers received these bonuses, their large amounts significantly increased pay variation. For Navy and Army officers, pay variability continued into the later career, between YOS 20 and YOS 30.

An examination of the years of service or experience mix of personnel across occupational areas within a service suggests that the service branches have generally relied on special and incentive pays and bonuses to generate similar careers across occupational specialties (Tables 3 and 4). That is, the variation in these pays has resulted in conformity in the experience mix of the career force, particularly after the first five years of service. The greater “front end” variation in the YOS 1–5 category probably reflects differences in attrition rates (leaving before completing the first term) and adjustments in recruiting targets driven by unexpectedly high or low retention in higher years of service. Only a small percentage of enlisted personnel, often less than 5 percent, have 21–30 years of service. The patterns for officers are similar in many ways, the chief exception being that typically 10–15 percent of officers have 21–30 years of service whereas only 20–30 percent have 1–5 years of service—much lower than the nearly 50 percent in the enlisted force.

Although the experience mix is similar across occupations within a service, there are some differences across the services. These differences arise from the services’ roles and missions and the inherent attractiveness of the training, career tracks, living environments,

⁵ Enlisted-pay variation in the Navy resembled that in the Air Force, whereas most of the variation in the Army came from promotion speed (variation for the Army due to bonuses is apparent in the first ten years of service but less prominent than for the Air Force), and most of the pay variation in the Marine Corps came from promotion speed (the Marine Corps makes little use of bonuses and only minor use of S&I pays).

⁶ We use the 30th percentile because workers at the 10th percentile might not qualify for or be sought by the services. See Asch, Hosek, and Martin (2002) for further pay-range comparisons.

Table 3
Enlisted Year of Service Distribution by One-Digit DoD Occupational Code, FY 1999 (%)

One-Digit Occupational Area	YOS 1-5	YOS 6-10	YOS 11-20	YOS 21-30
Army				
Infantry, Gun Crews, and Seamanship Specialists	57.3	16.9	22.6	3.2
Electronic Equipment Repairers	59.3	18.4	20.3	2.0
Communications and Intelligence Specialists	56.1	17.8	23.5	2.6
Health Care Specialists	49.3	25.0	23.1	2.6
Other Technical and Allied Specialists	48.0	20.2	28.0	3.7
Functional Support and Administration	44.6	21.9	27.7	5.8
Electrical and Mechanical Equipment Repairers	55.8	20.8	21.1	2.4
Craftsmen	61.2	19.2	17.7	2.0
Service and Supply Handlers	56.5	20.5	21.1	1.9
Navy				
Infantry, Gun Crews, and Seamanship Specialists	55.3	13.3	28.1	3.3
Electronic Equipment Repairers	39.2	20.1	37.0	3.6
Communications and Intelligence Specialists	44.6	20.8	31.5	3.2
Health Care Specialists	40.3	27.7	28.8	3.2
Other Technical and Allied Specialists	22.8	19.8	50.2	7.1
Functional Support and Administration	24.8	22.1	47.0	6.1
Electrical and Mechanical Equipment Repairers	46.6	18.7	31.2	3.5
Craftsmen	32.7	22.1	42.4	2.8
Service and Supply Handlers	28.2	24.5	43.6	3.7
Marine Corps				
Infantry, Gun Crews, and Seamanship Specialists	77.1	10.6	10.9	1.4
Electronic Equipment Repairers	59.9	18.6	17.7	3.7
Communications and Intelligence Specialists	59.1	17.7	19.6	3.6
Health Care Specialists	38.3	21.2	36.0	4.5
Other Technical and Allied Specialists	57.9	18.6	19.9	3.5
Functional Support and Administration	54.7	15.8	22.2	7.3
Electrical and Mechanical Equipment Repairers	63.5	17.0	16.5	3.0
Craftsmen	68.7	14.7	14.8	1.8
Service and Supply Handlers	70.2	14.2	13.2	2.3
Air Force				
Infantry, Gun Crews, and Seamanship Specialists	43.0	17.6	35.0	4.4
Electronic Equipment Repairers	33.4	18.4	41.9	6.4
Communications and Intelligence Specialists	35.9	16.8	40.8	6.5
Health Care Specialists	43.3	24.8	28.6	3.4
Other Technical and Allied Specialists	39.3	16.8	38.2	5.7
Functional Support and Administration	28.5	19.3	44.3	8.0
Electrical and Mechanical Equipment Repairers	35.5	18.4	39.4	6.7
Craftsmen	36.4	18.6	37.1	7.9
Service and Supply Handlers	36.0	22.0	35.5	6.5

Table 4
Officer Year of Service Distribution by One-Digit DoD Occupational Code, FY 1999 (%)

One-Digit Occupational Area	YOS 1-5	YOS 6-10	YOS 11-20	YOS 21-30
Army				
Tactical Operations Officers	31.7	22.3	34.1	11.9
Intelligence Officers	24.4	22.5	43.3	9.8
Engineering and Maintenance Officers	39.0	20.1	33.1	7.8
Scientists and Professionals	23.7	17.9	42.4	16.0
Health Care Officers	30.4	23.2	35.6	10.8
Administrators	23.1	19.5	41.0	16.5
Supply, Procurement, and Allied Officers	26.6	21.0	41.2	11.2
Navy				
Tactical Operations Officers	15.8	30.0	39.5	14.7
Intelligence Officers	20.5	22.3	43.2	14.0
Engineering and Maintenance Officers	6.7	7.1	51.1	35.1
Scientists and Professionals	17.6	23.5	43.8	15.2
Health Care Officers	29.0	22.2	36.2	12.6
Administrators	46.7	10.6	31.3	11.4
Supply, Procurement, and Allied Officers	15.2	21.2	45.5	18.1
Marine Corps				
Tactical Operations Officers	20.6	33.3	36.3	9.7
Intelligence Officers	27.1	26.5	34.4	12.0
Engineering and Maintenance Officers	16.8	20.6	37.9	24.7
Scientists and Professionals	31.1	25.5	37.0	6.3
Health Care Officers	32.7	22.5	36.8	8.1
Administrators	25.9	26.5	33.3	14.4
Supply, Procurement, and Allied Officers	26.7	26.7	33.3	13.3
Air Force				
Tactical Operations Officers	14.9	26.8	46.1	12.2
Intelligence Officers	28.2	23.1	33.1	15.6
Engineering and Maintenance Officers	26.9	23.1	38.9	11.1
Scientists and Professionals	25.0	21.3	39.4	14.3
Health Care Officers	30.8	22.7	36.2	10.4
Administrators	24.0	21.4	31.1	23.5
Supply, Procurement, and Allied Officers	19.4	17.4	38.6	24.5

and opportunities for deployment. While the experience mixes of the Army and the Navy have similarities, the Navy's mix appears to be more diverse, perhaps reflecting differences between its seagoing and non-seagoing communities. The Marine Corps has the most junior force: It concentrates its fighting force in the first term and strictly limits continuation into the career force. The Air Force has the most similar experience mix across occupational areas, reflecting its policy of equal advancement opportunity regardless of specialty. It also has the most senior force overall, i.e., the highest percentage of personnel with more than ten years

of service. The value of career opportunities within the Air Force is the most likely explanation for the seemingly contradictory fact that the Air Force has the lowest average pay but the highest average experience.

Our comparisons are at the one-digit occupational category level, i.e., the broadest level. Within each broad occupational category, careers typically begin in narrowly defined occupations and feed into supervisory and leadership positions in these occupational areas. Thus, upward mobility tends to occur within a career field. Retraining into a different occupational area occurs to some extent, particularly at first-term reenlistment, but this happens relatively rarely.

Attractive Features of the Current Systems

The current systems have a number of attractive features that should not be overlooked when discussing changes to the systems.

The modern military compensation system was developed by the 1948 Advisory Commission on Service Pay ("Hook Commission") and was enacted into law in 1949. Although various changes have occurred since then, the basic structure—of the basic pay tables, various allowances, special and incentive pays, and immediate retirement benefits after 20 years of service—has remained essentially unchanged. The compensation system is highly visible, stable, equitable. It accommodates changes in force size, provides rewards to advancement, offers well-targeted supplemental pays, and contains incentives to prolong careers and incentives to exit the force. The published, regularly updated basic pay table, coupled with allowances for housing and subsistence, allows members to easily see how their pay will change through longevity and promotion. The structure of the basic pay table has been highly stable; changes to the structure are made only after considerable study and deliberation. The stability makes members confident that they can forecast their future earnings stream, and the absence of radical change avoids invidious comparisons and blatant inequities across different generations of military personnel (e.g., those entering service one year ago, five years ago, or fifteen years ago). That the pay table is common across occupations and services underscores the notion of equity—different members in different services are equally valued, given their years of experience and rank—and a shared awareness of equity may well be a unifying concept in wartime and peacetime because members see that they are, in large part, paid the same whatever their activity.

The pay table has held up under increases in force size (the Cold War build up), changes in experience mix (Korea, Vietnam), and decreases in force size (the end of the Cold War), and it has done so during the draft era and the volunteer era. (Legislation permits the reinstatement of the draft in times of national emergency.) The pay table provides returns to advancement by structuring pay such that the return to promotion is greater than the return to another year at the same grade. The ranks themselves provide explicit rungs on a career ladder, and the opportunity to move up the ranks—and receive higher pay—represents an incentive structure to induce members to exert effort and to reveal their skills and talents.⁷

⁷ Direct measures of effort and talent are not available. Promotion requires personnel to acquire necessary skills and knowledge, verified by written or hands-on tests, and also depends on physical fitness, supervisor rating of performance and future potential, awards and decorations, and additional educational attainment. Each of these items requires the exertion of effort.

The supplemental pays have been constructed with specific rationales.⁸ Bonus authority enables the recruitment of high-quality personnel into hard-to-fill skills and the retention of trained, experienced personnel in skills where training investments are large (e.g., pilots, nuclear trained officers) and where shortfalls would imperil military capability. Pays related to certain proficiencies (foreign language, parachute, nuclear, medical, aviation), specialty-related risks (hazardous material), location disparities (domestic and overseas COLAs), persistent separation (sea pay, family separation allowance), hardship (recovering the remains of service members in remote locations, assignments to locations without amenities), and imminent danger are generally accepted as adjustments to basic pay and allowances that are necessary to meet manning requirements and to compensate for unusual circumstances or risks. The supplemental pays are large in relatively few cases, small in most cases, and typically received by a small fraction of personnel. Their clear rationale and narrow targeting prevent them from eroding the sense of equity fostered by the basic pay table. In fact, one can argue that special pays operate to conserve equity, because even though the basic pay table is the same for all personnel, the conditions of work are not the same, and special pays such as sea pay, hazardous duty pay, COLAs, hostile fire pay, and family separation pay help to compensate for these differences. Also, by sustaining retention relative to manpower requirements, special pays help to maintain similar promotion opportunities across occupations.

Finally, the retirement benefit system, with both vesting and eligibility to retire occurring at 20 years of service, creates a powerful incentive to stay in the military beyond ten years and to leave after 20 years. The added retention increases the return to training investments and creates a larger pool of experienced members whose knowledge of policy and procedure may help keep activities running smoothly.

The personnel management system serves the function of developing, advancing, and assigning personnel. Military training helps to build an identity with the organization, unit cohesion, and an understanding of the command and control system and the importance of following orders. Advanced training and military professional education contribute to the development of leadership and communication skills and provide a thorough understanding of the roles, missions, equipment, tactics, and decisions required by those in positions of authority.

The promotion system clearly defines the rank structure and describes the responsibilities attending each rank. The criteria for promotion are explicit, detailed, and common knowledge among members competing for promotion. In the lower ranks, the use of explicit criteria that depend on objectively measured elements, such as written and hands-on tests of skill and knowledge, physical fitness, marksmanship, successful completion of training, awards and decorations, and additional education, help to promote openness and fairness.

The assignment system for enlisted personnel operates centrally and matches available, qualified personnel to position openings ("faces to spaces"). Although sometimes members are allowed to choose the location of their next assignment as a retention incentive, as-

Supervisor rating of performance arguably includes an assessment of talent. Also, evidence shows that members with high scores on the Armed Forces Qualification Test are promoted more rapidly. See Hosek and Mattock (2003).

⁸ The pays are described in detail in DoD (1996).

signments typically occur independently of individual preferences and therefore offer no opportunity for influence activities. Officer assignments are also made centrally, but recommendations from senior officers are taken into account. Recommendations also matter for senior NCO positions.

Transforming Military Compensation and Personnel Policy

We think that the major challenge to transforming the military compensation and personnel management systems lies in increasing the flexibility for managing personnel and increasing the elements that support a culture of creativity, entrepreneurial activity, and intelligent risk-taking. Another large challenge is assuring the reserve forces that they will be suitably compensated if they are to be called upon far more frequently than in the Cold War era. In discussing these topics, we state the case for change, outline approaches for change and our concerns about them, and reflect on the factors that may have to be aligned for change to occur.

The Case for Change

Ideally, the unit structures and personnel mix that support various functions and activities will be determined without constraints on the experience mix of personnel. But as we have seen, experience is quite similar across occupational areas within a service. In effect, the experience mix is determined by the structure of compensation including promotion policy and the use of special and incentive pays. Although there are exceptions to this statement—bonuses and special pays can target retention behavior among specific groups of personnel, as can the inherent attractiveness of military careers—it would be focusing on the trees rather than the forest to ignore the effect of the compensation structure on experience mix. As a result, determining the manpower requirements for a function or activity is conditioned on the expected flow of personnel by year of service. That is, the compensation and personnel systems operate to provide a supply of personnel, and the manpower system makes allocations subject to supply constraints. In the best of all possible worlds, manpower requirements would emerge from an assessment of the effectiveness, and the cost-effectiveness, of different manpower configurations, and the compensation system would be sufficiently flexible to permit the optimal requirements to be obtained. It is questionable whether manpower requirements determined this way would equal the requirements as currently determined and would therefore lead to such similarity in the experience mix across occupations.

If it is true that the required experience mix demanded by the services is largely determined by the structure of compensation, then changes in that structure may be needed to permit greater flexibility in managing personnel. Such changes might affect retirement benefits, the basic pay table, the use of special and incentive pays, and the personnel assignment system. In our view, however, compensation reform has proven difficult to achieve because there has been little impetus from the demand side of the military for greater flexibility in personnel management.

Obstacles to Compensation Reform: The Example of Military Retirement Benefits

Retirement benefits have a strong effect on retention after about the tenth year of service. Both vesting and eligibility to receive retirement benefits occur at YOS 20. As a thought experiment, let us assume that vesting remained at YOS 20 but eligibility to receive benefits were set at age 62, as it is for reserve retirement. Then the incentive to leave service upon reaching YOS 20 would decline, as would the incentive to stay in service to YOS 20. Clearly, retention behavior is influenced by the retirement benefit structure, and changes in the structure could be devised to allow greater flexibility in shaping careers in career fields and even at the individual level within a field. Indeed, the numerous study groups and commissions that have been convened in the past 55 years to study the military retirement system have come to the conclusion that the retirement system stifles personnel management flexibility.

Asch, Johnson, and Warner (1998) have shown that a retirement reform package in which the age of eligibility to receive benefits was set at 62, the steepness of the basic pay table was increased, a thrift-savings-type program was introduced with early vesting (after five years of service, like the Employee Retirement Income Security Act), and selective separation payments were introduced would sustain or increase retention, strengthen incentives for effort, and cost less than the current system. The selective separation payments would enable the services to tailor each occupation's retention profile. Furthermore, although selective pays like bonuses and separation pays have been targeted toward a particular career field, they could in addition be targeted to individuals. That is, the services could be given the authority to offer such pays to retain particularly well-qualified individuals or to encourage the exit of individuals who are underperforming but who otherwise would be allowed to complete 20 years of service. In 2000, the Defense Science Board Task Force on Human Resource Strategy also recommended reforming the retirement system by including a retirement plan like the thrift-savings plan for federal civil service workers and separation pay components to enhance flexible management of personnel (DoD, 2000).

There appear to be several reasons why proposals such as these have generated debate but not consensus for action. The call for retirement reform has not been voiced by the services, the gains in military capability from the reform have not been demonstrated and quantified, a transition plan has not been specified, and the costs of transition have not been estimated. And to some, *any* revamping of the retirement benefit system raises fears of broken trust, benefit cuts, and an open door to future rounds of disruptive and demoralizing changes. In addition, individual-level special pays raise the question of whether individual-level performance assessments are sufficiently fair, accurate, and efficient to support such actions. These points deserve serious attention and require analysis if such unorthodox change is to be politically feasible, let alone attractive, as a mechanism to implement transformation.¹

The most recent position taken by the services on retirement reform concerned the roll-back of REDUX, the acronym for an earlier change in the retirement benefit structure

¹ In fact, there was broad consensus that the personnel and compensation systems needed to be reformed well before the concept of transformation emerged. This is consistent with our view of transformation as a rubric for encouraging innovation and reform rather than a newly discovered, specific recipe for change. Of course, possible areas for reforms go well beyond the retirement system and include the roles and missions of the active and reserve forces, civilian personnel, and contractors; and the interaction among the services in planning, acquisition, and operations.

that mandated a reduction in retirement benefits from 50 percent to 40 percent of basic pay at YOS 20 for personnel entering active duty after August 1, 1986, but allowed benefits to rise to 75 percent of basic pay at YOS 30, as under the previous system. A dozen years later in the late 1990s, as the reality of this change sank in, the service chiefs began to hear numerous complaints from the field about the inequity of retirement benefit differences for personnel entering just after, versus just before, August 1, 1986, but otherwise doing the same work and making the same sacrifice.

Ultimately, equity was restored by giving service members under REDUX the choice of the pre-REDUX benefit structure (called Hi-Three) or receiving a \$30,000 bonus at YOS 15 in exchange for a pledge to remain in service for five more years and remain under REDUX. The pressure for this change resulted not from quantitative evidence showing that REDUX distorted the efficient allocation of manpower or reduced proficiency in performing mission-essential tasks, but rather from a growing consensus within the services that REDUX eroded morale—therefore negatively affecting military capability. It created a disturbance that would resound in the field, in budget deliberations, and in press coverage over the next decade or longer.

The lack of quantitative evidence about the effect of REDUX on military capability seems highly consequential to the policy debate. The debate centered, perhaps inevitably, on the core value of equity. REDUX indeed violated equity between cohorts, but there was no evidence-based case to explain how equity had been traded off for greater military capability or even an improvement in military careers. In effect, REDUX was seen as a cost saving that reduced pay for part of the force in a seemingly arbitrary way; it was not accompanied by hard evidence showing that it increased (or did not reduce) military capability. Inequities are tolerated in many other instances in the form of targeted enlistment incentives, continuation incentives, proficiency pay, and sea pay, probably because these incentives help eliminate inequities in circumstance and support equity in opportunity for promotion. But REDUX affected all personnel reaching or anticipating military retirement, and REDUX was not accompanied by analysis showing that too many personnel stayed to YOS 20 and too few stayed after 20, i.e., that personnel were misallocated.

These points have their counterpart in discussions about increasing flexibility in managing personnel. Special and incentive pays appear to be an acceptable means of lengthening careers up to a point. However, for careers extending beyond YOS 10, the pull of retirement benefits becomes stronger, and the services may find too many personnel choosing to stay relative to manning requirements. Although separation pay could help shape retention in years 10 to 20, the higher retention would in due time lead to an increase in retirement cost and in retirement benefit accrual charges. Yet even if pay mechanisms such as separation pay were available to shape the retention profile, there is the question of whether the services would choose to manage personnel and set requirements differently than they do now. This of course is the question about innovation, creativity, and entrepreneurship and the incentives on the part of the services to manage and compensate personnel in nontraditional ways. It is one thing to have compensation and personnel systems that *permit* more flexibility, and another thing to *demand* more flexibility, especially if policies to enhance flexibility are viewed as threatening core values such as equity.

The Demand for Flexibility: An Example

To consider the demand for flexibility, it is helpful to review the current manpower requirement determination process. Although this subject is vast and each service and command has its own approach, the process used by the U.S. Army Training and Doctrine Command (TRADOC) is illustrative. TRADOC develops a command-wide manpower program that takes into account the programmed workload, priorities for accomplishing it, and personnel constraints ("available manpower resources"). The program depends on the technology chosen to accomplish the work (the production function, in a sense), the manpower and equipment required by the technology, the funding required, the funding available as set by program budget guidance, and priorities (or trade-offs) for accomplishing different workloads. The first step is a discussion between the functional manager and the manpower manager to agree upon the types and levels of work to be done, resulting in a "validated workload requirement." The technology choice is then made, and equipment and staffing requirements are determined. "Manpower staffing standards and functional estimating equations" are used, and these models "have a proven relationship between the work required and the workload driver." Priorities and funding are then taken into consideration, and this leads to a "straw-man" manpower program that is reviewed by functional proponents (program directors) at the command level who may make adjustments based on priority changes within their areas. The revised program is then sent to the field where field commanders can make reallocations across their functional mission areas within the aggregate resource levels assigned in the working plan. Once these changes are incorporated, the program is given a final review by the command. The command plan provides Army Headquarters with a unit level description of manpower requirements and serves as the input to the Army-wide table of distribution and allowances (TDA). The manpower requirements contained in the TDA are the spaces that must be filled by the personnel command. This workload-based system "provides commanders and functional managers with a consistent and objective view of the demand for labor and a process that supports the allocation of available manpower resources against priority missions."

The manpower requirement determination process has proven effective in providing feasible, auditable manpower requirements. The requirements are feasible in that they are sufficient to accomplish the programmed workload, and auditable in that the engineered manpower standards and estimating equations that relate workload to labor demand are open to inspection by those involved with the process. The use of credible, open methods as well as input from functional commanders and field commanders makes the process objective and inclusive. Applying the same methods to each unit avoids disagreements that would result from allowing field commanders to submit manpower requirements based on their own methods. On net, the manpower requirement determination process is able to function as a resource allocation mechanism in what amounts to a centrally planned economy.

But the process, although useful for determining budgets and programming resources, has limitations. The manpower requirements are often not fulfilled in practice (authorized, funded positions are below the stated requirements), leading to the question of what the requirements actually represent. Further, although innovation occurs, the process does not have strong incentives for innovation. Status quo resource allocations are defensible in the current period if they worked in the previous period, whereas innovations that create

efficiencies run the risk of decreasing an organization's resources in the future and disrupting its organizational structure (sometimes referred to as "eliminating someone's rice bowl").

Innovation requires a special effort to go against the existing manpower standards and estimating equations and thereby upset the equilibrium among the organizations covered by the requirement determination process. The implementation of innovation, let alone planning the innovation, may require special budget allocations that can be difficult to obtain, and the innovator may need to develop a consensus among stakeholders to gain support for the innovation. Several years may elapse before the concept, funding, and organizational support are in place. This length of time is often longer than a commander's rotation assignment, and opponents to an innovation may therefore be able to outwait the initiative. Furthermore, innovations often involve a period of learning and adjustment, and innovators face the risk of little immediate payoff and possible failure, either of which could lead to adverse performance appraisals. As discussed in the context of the promotion process, these factors arguably lead to a culture of predictability, conformity, and "yes-people," not one of creativity and innovation. Finally, although we are discussing the manpower requirement process, it is useful to recognize that innovation can occur through changes in that process or, given the process, through changes in targets and rewards for unit performance, which, if successful, can feed back into requirement-setting.

In the private sector, the impetus to innovate among senior managers comes from the profit motive, the behavior of rival firms, the threat of entry, and the possibility of bankruptcy. In the public sector, efforts to increase efficiency, flexibility, and innovation have employed benchmarking, outsourcing, and reorganization, which can be thought of as counterparts to competition, entry, and bankruptcy. The military does not operate on a profit motive and does not have a residual claimant, such as a manager, owner, or shareholder who receives all incremental monetary return to greater effort, skill, and ability. But a type of residual claim may be given through other mechanisms, such as promotion and nonpecuniary benefits, such as recognition and choice in assignments, as we discuss next.

Approaches for Change

To summarize the discussion, tools and policies to achieve more-flexible management of personnel exist—as in the case of special and incentive pays, or have been proposed—as in the case of calls to reform the retirement system. Although additional tools could be useful, the heart of the problem is not the lack of tools but the lack of incentive or "demand" for flexibility on the part of defense managers. Indeed, the discussion in the previous sections illustrates that existing policies and procedures are used to achieve conformity within each service branch. To achieve greater flexibility in managing personnel and more variable outcomes in terms of career length and assignment length, the demand for flexibility and the incentives to be innovative and work in new ways must increase. Thus, the following discussion focuses less on proposing new tools for flexibility (a topic discussed by numerous studies and commissions over the years) and more on how to produce a greater demand for flexibility and innovative behavior.

Performance Appraisals

The traditional mechanism for the provision of incentive for performance and innovation in the military is the promotion process. Performance is evaluated in terms of predetermined criteria that rely on the metrics mentioned earlier and on evaluations by the supervisor and commanding officer. Increased incentives for innovation, informed risk-taking, and greater use of available flexibilities to achieve more-variable results could be improved by expanding the criteria used by commanding officers in their evaluations.

Specifically, performance appraisals could place greater emphasis on innovation, creativity, and entrepreneurship, so that these factors would figure more prominently in promotion decisions. Although supervisors and commanding officers now appraise performance, a 360-degree appraisal whereby subordinates as well as supervisors provide input to the appraisal might offer additional information about a candidate's receptivity to ideas from below and efforts to put them into action. Performance appraisals would not replace more traditional evaluation methods, such as test scores and fitness reports, but they would provide supplementary information about dimensions of performance that are verifiable and known to the commanding officer but not easily measured by conventional metrics or are subject to uncertainty. Furthermore, traditional metrics might be expanded to include measures of performance related to innovation, when such metrics are available. Expanding the promotion criteria to include transformation-related performance also gives members who have the ability to be creative and innovative an incentive to remain in the military and seek advancement to leadership positions.

When relying on performance appraisals of commanding officers and supervisors, it is important to recognize the potential for "influence behavior." When performance is difficult to measure or is unmeasured, and promotion decisions depend heavily on the subjective judgment of supervisors, individuals competing for promotion have an incentive to engage in actions to tout their own talents and accomplishments or to diminish those of their rivals.² Such behavior is costly from the military's perspective because it improves not performance but just individuals' pay. Indeed, it can diminish performance if individuals devote time or resources to such activities that would have otherwise been used for productive activities. Influence costs can be reduced if subjective evaluations are supplemented with the use of meaningful metrics that are not subject to influence behavior. They can also be reduced if the financial gains associated with promotion are limited. Although limiting the financial gain also reduces the incentive for high performance, such limits may make sense if the costs of influence behavior are substantial relative to the benefits. Put another way, incentives that induce high performance may also be accompanied by influence behavior, the level of which may be tolerable if the benefits of high performance are large.

A challenge to implementing a performance appraisal process that recognizes innovation and greater use of flexibility is the difficulty of obtaining meaningful metrics and tying specific actions to desired outcomes. For this reason, documentation of initiative should supplement the appraisals. Where possible, the documentation could include a description of concept, objective, implementation, and results, such as a quantitative assessment involving not merely case-study descriptions but also before-and-after comparisons of performance relative to that of comparable activities or organizations in the military. Comparisons might

² The issue of influence behavior has been studied in the economics literature. See Milgrom (1988) for discussion of the issue and see Prendergast (1999) for a review of the evidence in the private sector.

be extended to the private sector in certain cases, as has been done in Army logistics, where in the past decade the philosophy and organization of logistics changed from stockpiling spares to high-velocity resupply, computerized tracking of each item, and networked information and ordering systems. Because most noncombat activities occur at multiple sites within a service, share similarities across the services, and have private-sector counterparts, the opportunity for quantitative assessment and the expansion of performance metrics seems considerable.

Awards

Promotion is only one way to reward desired individual behavior. Awards can be provided in a variety of ways. For example, recruiting commands recognize consistently outstanding recruiters through public appreciation by means of awards, such as rings, certificates, and plaques. This could also be done for innovators. More generally, awards could be made for both individual and unit achievement relative to a preset goal, as is done in recruiting, or based on judgment by a panel of experts, as in awards for excellence such as the Baldrige Quality Awards. Awards could also be based on a comparison of units with one another using metrics related to performance level or performance improvement. It is crucially important, however, to know what to reward. Well-chosen objectives and a careful selection process with clearly specified criteria add to the prestige of the award. It is also important to recognize that group-level awards can lead to “free-riding” behavior whereby individuals within the unit reduce effort and rely on their colleagues to extend effort. Incentives for free-riding are reduced or offset when group-level awards are supplemented with awards based on individual performance.

Policy statements and actions by the top leadership should reinforce the greater emphasis on innovation, flexibility, and entrepreneurship in performance appraisal and the achievement of rewards. Such emphasis helps ensure that people at all levels take innovation seriously and helps change the culture by disseminating information about changing values and beliefs. A military culture that places greater value on the importance of innovation helps ensure that actions, norms, and decisions reflect this emphasis.

Choice of Duty and Job Assignment

An alternative to promotion and recognition as a means of providing incentives for performance that supports transformation is to provide members with more choice in factors related to their duty and job assignment. Permitting officers or enlisted members to have a greater voice in selecting their next assignment requires a careful weighing of the benefit to the organization and the benefit to the individual. In some cases, the organization may have the flexibility to define a set of acceptable assignments and let the individual choose from within the set. The organization can establish criteria to define who is allowed to choose. By taking the organization’s interest into account, the criteria can provide assurance beforehand that the policy of allowing the member some choice will not adversely affect the organization—e.g., will not result in poorer matches between personnel and positions. At the same time, the policy of offering choice should increase the member’s *ex ante* level of satisfaction.

If members have a say in selecting their assignments, they stand a better chance of getting what they prefer.

A promising example of greater individual choice is the Navy assignment incentive program (AIP), a pilot program allowing eligible sailors to bid for assignment to shore billets in distant ports. Sea pay will no longer be paid for these billets. Instead, the Navy is holding a second-price sealed bid auction on-line. The Navy is willing to pay a maximum of \$450 per month to man these billets, but because preferences differ among sailors, some sailors will accept a considerably lower amount (by "bidding," say, that they will accept \$250) and yet will be satisfied to have been chosen for the assignment. This matching of assignment with individual preference should result in greater satisfaction and perhaps higher retention than under an assignment system that does not take individual preference into account. If too few qualified bids are made, the Navy reserves the right to make unilateral assignments, i.e., to revert to the current method. About 4,000 positions will be offered when the pilot is in full swing. Also, sailors once chosen for a preferred assignment may opt to extend their tour, which should reduce the frequency and cost of relocating personnel. Overall, the program should result in mutual benefit to the Navy and the sailor.

The auction-based assignment system, as the Navy has implemented it, does not impede the chain of command. Also, the program is relatively small and has little impact on the usual assignment system; it does not noticeably deplete the supply of personnel available for assignment. However, the program could be scaled up. The benefit to the organization from scaling up would depend on the impact on morale, unit cohesion, proficiency, performance, and retention, as well as on cost. Today, the cost of matching faces to spaces is apparently small because it is done by a centralized activity that relies on a matching model. But to assert that the cost is small is to assume that the accounting cost of the matching system represents the full cost to the organization, whereas the cost and benefit of the system should be judged relative to the best alternatives. In the past, no real alternative to computerized matching was put forward, and computerized matching was feasible—it got the job done. Yet computerized matching might or might not result in lower benefits and higher cost than a voluntary assignment system once the proper accounting is done.

A voluntary assignment system would look considerably different from the current system. In effect, an internal-market clearing price would be put on each assignment. Theoretically, some personnel would be willing to pay for prized assignments by giving up part of their basic pay. But if this were not permitted, then all such highly valued assignments would be filled by bidders bidding zero dollars, implying their willingness to be chosen for those assignments without any additional pay. If there were an excess supply of volunteers, the choice would be made at the discretion of the service from the volunteers. The pool of volunteers would be self-selected, but the choice of volunteers from the pool would be random (or random conditional on minimizing relocation cost). For less-popular assignments, the service would have to pay a positive amount—equal to the minimum bid—for each assignment. There would presumably be an aggregate budget for such payments. This amount might be equal to the expected cost savings, estimated in some fashion, resulting from the volunteer system relative to the current matching system. The service would have to allocate its given budget across assignments. Depending on preferences, the budget might be high enough to offer a payment to every volunteer. But if not, the service could offer a payment up to a limit for each assignment and, as now, simply fill the remaining billets by direct order. If personnel expected some risk of being ordered to a billet regardless of preference, they

would be induced to bid less than otherwise (say \$150 rather than \$250) and thereby increase the chance that they would have a preferred location and the chance that the given budget would be sufficient for all billets to be filled by volunteers.

Pay for Performance

Another form of incentive is a pay increase without promotion, an approach that can be used for members whose grade progression is slower and who spend more time in a given grade, such as those on a technical rather than leadership career track. The essential question here is how to link the payment to desired behaviors, such as creativity. One approach is to pay members based on an assessment of their performance with respect to creativity, innovation, and entrepreneurship. This proposal is challenging—and even radical—because it is a pay-for-performance scheme. Today, the military does not use pay for performance at all, except in the sense that superior performance results in faster promotion. The military does offer special and incentive pays for proficiency in selected skills, duty in certain locations and circumstances, and retention. These pays are designated for a group and go to all members in the group. They are either a fixed amount or, in the case of bonuses, an amount that depends on term length.

In contrast, pay for performance offers the same incentive structure to all members in a group but pays them according to their performance. Payment can be limited to the current period, like a lump-sum bonus, or paid over time, like proficiency pay. Performance can be assessed subjectively, objectively, or both, and can consider individual performance, team performance, and organization performance. The assessment can consider both inputs—effort, concept, planning—and outputs—actual improvement in quantity, quality, timeliness, and cost.

To achieve validity, acceptance, and effectiveness as a compensation tool, a pay-for-performance scheme should have relevant, timely, accurate measures. Where multiple activities and multiple metrics are involved, performance scores should be combined (or weighted) to reflect command priorities (recall that priorities are used in determining manpower requirements). Where performance is compared across sites, members and groups ideally should have the same opportunity to perform, and where conditions (e.g., physical layout, equipment) differ, methods should be developed to adjust for the differences. The amount of money at stake needs to be large enough to influence effort and may be related to how well leadership has established a culture of creativity. Although meeting these conditions is demanding, the overall objective is to embed tangible incentives for transformation in the system.

A number of pitfalls are associated with pay-for-performance schemes, and care must be taken to recognize and address them, if possible. The pitfalls have to do with multiple principals, multiple goals, measurement of inputs and results, teams, shirking, risk aversion, and the personal discount rate. The simplest and arguably the most positive setting for pay-for-performance schemes is one that has a single, easily measured output, the amount of which depends on an individual's effort. But the setting in large organizations like the military is typically far more complicated. A unit may report to several principals that have different concerns, for instance, readiness and deployability, resource programming, and capital budgeting. Teamwork is the norm in the military, and attempts to identify and reward indi-

vidual contributions may be arbitrary and divisive. Many outputs and inputs are not measured in a way that connects inputs to outputs (proponents of activity-based analysis chide the stove-piped budgeting system for obliterating this connection). Some outputs, such as services, are not easily measured, and adjustments for the quality of measured outputs are often difficult to make (this is well illustrated by problems in adjusting for the quality of consumer goods in the Consumer Price Index). If incentives are tied to readily measured outputs, the allocation of effort may be distorted toward those outputs and away from other equally important but difficult-to-measure outputs. If incentives are based on team- and organization-level measures, lower overall effort might be expected than under strictly individual incentives because of free-riding behavior. Although higher overall effort is possible if there are complementarities in the effort of team members, whether such complementarities exist in a given team and their effects on effort are empirical questions. Finally, pay-for-performance schemes can be divisive if the system lacks integrity and the awarding of pay is viewed as unfair. In contrast, the current promotion system indirectly links pay with performance and gives the assurance of equity through the use of a common pay table.

If the payoff to superior performance comes in a future period, the strength of the incentive will be lower for individuals with high discount rates. Furthermore, pay-for-performance schemes put risk on the individual when pay depends on results, but results depend not only on individual initiative but on factors outside the individual's control (seemingly random factors from the individual's viewpoint). For risk-averse individuals, the greater the risk, the weaker the incentive. Moreover, the larger the downside risk, the weaker the incentive. Pay-for-performance schemes usually specify a base level of pay and an *increase* in pay as a function of effort or output. But an officer management system that, for example, is believed to have zero-tolerance for defects—that is, a huge downside risk—would deter officers from taking a risk to innovate.

These pitfalls of pay for performance suggest that it will not see extensive use in the military or that the amount of money at risk and dependent on performance will be relatively small. But while smaller financial rewards imply weaker incentives, even weak incentives can be meaningful. For example, informal evidence on military recruiters suggests that their productivity is responsive to the rewards and public recognition they receive for strong performance, even though the monetary value of the rewards is trivial. Similarly, evidence on enlistment bonuses shows that the enlistment behavior of young adults is responsive to these bonuses. The value of bonuses as a compensation tool lies in this responsiveness and in the ability to target bonuses on a particular group, thereby limiting the budget outlay. Thus pay-for-performance methods, even if the incentives are relatively weak, should not be dismissed out of hand, especially for some groups of personnel or for those in particular situations.

Conclusion

The gains achievable under transformation depend on technology, culture, and people, and the contribution of people depends on compensation and personnel management policies.

Although the current compensation and personnel management policies have many advantages and a proven record of effectiveness in meeting manning requirements, transformation requires a significant change from status quo behavior, and that in turn requires greater flexibility in using people and greater incentives for innovation, creativity, and entrepreneurship.

It would be a mistake to lose sight of the effectiveness of current policies within the context of the AVF as a foundation for supporting transformation. The policies on the whole have delivered the personnel needed to meet manning requirements, and the planning processes that look ahead have functioned sufficiently well to modify training and career tracks in response to anticipated changes in requirements. Furthermore, for at least two decades—since the manning crisis in 1979–1980—the policies have delivered high-quality personnel. The importance of this fact cannot be overstated. In the enlisted force, high-quality personnel are more proficient in training, more proficient in duty-related tasks, more likely to complete their first term of service, and more likely to advance to higher grades. In addition, and more subtly, the system has worked well to identify personnel who are an especially good match with the military, as evidenced by their performance and reflected by persistently faster promotion than their peers. These well-matched, high-performing personnel are more likely to reenlist (Hosek and Mattock, 2003). The system is therefore pro-selective on quality.

The officer system has also functioned well to train and attract college graduates; and it is also safe to say that the service academies and Reserve Officer Training Corps (ROTC) programs have been successful in providing high-quality officer accessions in sufficient numbers to meet manning requirements. Well-trained, high-quality enlisted and officer personnel represent a superb reservoir of talent that can be applied to conceive and carry out the many innovations that constitute transformation. It is therefore important to conserve the strengths of current policies even as changes to those policies are contemplated.

The key axes of personnel management and compensation change are greater flexibility to manage personnel and stronger incentives for intelligent risk-taking, more entrepreneurship to launch new initiatives, and greater creativity in all phases of military activity. We have identified a number of personnel and compensation policy changes that can support greater flexibility and stronger incentives, but whether these are pursued will depend on the commitment of top leadership and the demand from within the services at lower levels. Service leaders have already stated the need for a change in culture, and there is little doubt their message has been heard. But the change that has been occurring might have occurred

anyway, given the historical record of change in the services. For instance, the Army created light- and medium-weight brigades, the Air Force reorganized into an expeditionary force, the Navy redesigned its assignment system to place greater weight on the career planning and aspirations of the individual sailor, and the Marine Corps, like the other services, modernized its logistics system. Nevertheless, it seems reasonable to suggest that a clear, sustained leadership commitment to cultural change is essential for transformational improvements in flexibility and creativity, especially if changes appear to run counter to other cultural values such as equity.

Incentives at the organizational level and at the individual level are both important.¹ Organizations require incentives to change from status quo methods, procedures, and resource allocations. Those incentives may be as straightforward as developing metrics to monitor and compare performance across comparable activities at other sites, so that the effect of innovations can be identified.² The old bureaucratic bogeyman of losing resources if cost-effective improvements are made can be weakened when creativity and entrepreneurship become cultural values, esteemed at all levels, and rewarded at the individual level. Innovations that keep personnel in grade longer or that lengthen or shorten careers can be supported by changes in pay and personnel management policy that permit this greater flexibility.

Sharing of information and rigorous assessment of results are valuable components of change, and hence of transformation. Experience in developing metrics; collecting data on performance; and storing, retrieving, and analyzing those data should be shared across the services and the analytical community. From this perspective, it is worth considering a broader charter for the Defense Manpower Data Center (DMDC). The birth of DMDC can be traced to the poor state of personnel data available for analysis at the outset of the Gates Commission in the 1960s and, as events unfolded, to the widespread recognition of the value of personnel data to inform policy. Yet today, the personnel data collected by DMDC are very much the product of the original data templates, and there are virtually no data linking personnel to activity so that metrics of performance can be analyzed with respect to different, and innovative, manpower configurations and incentive structures. Building such a linked database is a large undertaking, but judging from the payoff of the investment in data on personnel and the importance of transformation itself, the effort may well be worthwhile.

Transformation will likely be accelerated if the changes in compensation and personnel policy that it implies are proven to be valuable to military capability. To that end, it would be worthwhile to develop, implement, and evaluate a limited number of demonstration projects in the armed forces to test the validity and effectiveness of new personnel and compensation policies. Such demonstrations could focus on specific activities or specific communities where the lessons learned could be leveraged and applied more broadly. Demonstration projects authorized for the federal civil service in the late 1970s included a project at the Naval Weapons Center in China Lake, California, that began in 1980 and tested a

¹ In DoD, an organization resides within a hierarchy of organizations, each having budget and reporting requirements. Therefore, it is meaningful to speak of incentives at the organizational level, just as incentives are meaningful at the individual level. The concept of transformation appears to be aimed primarily at the organizational level, encouraging organizations and their leaders to become more innovative and entrepreneurial—which in turn may require changes in incentives at the individual level.

² To be clear, we are not talking about a metric for innovation per se but a metric for unit performance. When compared across innovating and non-innovating units, the metric can reveal the gains, if any, from the innovation.

flexible classification system and broad pay-banding system. Although such projects in the armed forces would need to be cognizant of the unique aspects of uniformed service, the concept of experimentation and documentation would be the same.

Finally, in addition to demonstrating the value of change, future analysis should focus on methods of surmounting the obstacles to transformation of personnel and compensation policy. This paper highlighted those obstacles—specifically the lack of demand for flexibility—in terms of the conformity of personnel outcomes produced by policy and in the context of retirement reform and the manpower requirements process. It also discussed the types of incentives that could be used to increase the demand for flexibility and addressed the obstacles to those incentives. Still more information is needed on where these obstacles are the greatest and how to navigate the possible tension between existing cultural values and the introduction of new values. Only by demonstrating the value of change and addressing the obstacles to change will meaningful change take place and be sustained in the coming years.

Transformation Defined

The term *transformation* has been used by the Department of Defense since the mid-1990s to encompass many different types of change, including radical alterations to defense strategies and more evolutionary modifications to personnel organization and management. In fact, DoD consistently emphasizes that it is undergoing not a single change, but a series of interconnected transformations that will ultimately affect all aspects of DoD. However, the multifaceted nature of DoD's transformation makes it difficult to come up with a concrete definition of the term or even to succinctly describe the specific processes involved in "transforming" the armed forces. More than anything else, transformation seems to represent a mandate for generating and embracing fundamental changes to all aspects of DoD, particularly its organization and governing philosophy.

The U.S. Joint Forces Command's (USJFCOM's) website entitled "What Is Transformation?" offers a description of this term that, although extremely general, provides a good starting point for discussion. The website states, "Transformation is the process of changing form, nature, or function. Within the United States military, transformation requires changing the form or structure of military forces; the nature of our military culture and doctrine supporting those forces; and streamlining our war fighting functions to more effectively meet the complexities of new threats challenging our nation."¹ At various times these processes of change and streamlining have included developing a more deployable and integrated fighting force, redesigning the U.S. base structure, improving training techniques, developing and applying laser technology and robotics, accelerating the missile defense program, improving the competitive acquisition process, and evaluating U.S. alliances with other countries. The challenge, therefore, is to distill from this all-encompassing definition the essence and core of what is meant by the concept of transformation.

In an attempt to simplify and direct the transformation process, DoD has outlined what it has termed the six major areas of transformation. These include the protection of the U.S. homeland and the defeat of weapons of mass destruction and their means of delivery; the projection and sustainment of power in distant environments; the denial of sanctuary to our enemies by developing capabilities for persistent surveillance, tracking, and rapid engagement; the leverage of information to link up joint forces; the protection of our information systems from attack; and the maintenance of unhindered access to space and the protection of U.S. space capabilities from enemy attack (Rumsfeld, 2002). Although these six

This appendix was prepared by Jennifer Kavanagh.

¹ USJFCOM: About Transformation, "What Is Transformation," www.jfcom.mil/about/transform, accessed 7/14/03.

objectives help to classify the long-term goals of transformation, they still do not shed much light on the detailed and daily activities required within the transformation process itself.

Top defense personnel justify the abstract nature of these definitions by arguing that transformation is not about technical changes or specific modifications within the armed forces but rather is predominantly a revolution in the culture and attitude of the military. Secretary Rumsfeld stated in 2002 that transformation requires dramatic change in "the way we think, the way we train, the way we exercise, and the way we fight." He went on to comment that transformation had to include changes not only within the armed forces but also within "the Department that serves them, by encouraging a culture of creativity and intelligent risk-taking. We must promote a more entrepreneurial approach to developing military capabilities, one that encourages people . . . to be more proactive, to behave somewhat less like bureaucrats and more like venture capitalists." In this sense, transformation is an attempt to change the way DoD works and the way that employees and service members perform and think about their jobs.

The Chairman of the Joint Chiefs of Staff, General Richard Myers, expanded on Rumsfeld's explanation of transformation by characterizing the process as having three key parts: intellectual, cultural, and technological (see Harper, 2003). By intellectual change, he means the fact that "people must have the mental agility to match their capabilities to new and unprecedented missions." The cultural aspect requires the development of an "attitude that values educated risk-taking and cooperation that spans organizations." Finally, he de-emphasized technological change, noting merely that "changes in doctrine, in our organization, in training, in logistics" make transformation possible. Combined, these three components contribute to the constitution of a new guiding framework and a refocused mentality for DoD.

Despite the fact that the most prominent defense officials define transformation almost exclusively without reference to particular initiatives, several more-specific reforms have been defined as vital to the objective of developing a modern and streamlined military. One such objective is "jointness," meaning the interoperability and cooperation between the different service divisions. Taken to its furthest extreme, the achievement of a truly "joint" armed forces requires joint training and the development of the capacity to carry out joint missions through the establishment of a "standing joint command and control capability" and the development of "tailorable force modules" (McCarthy, 2001). Jointness can also refer to greater interagency integration, such as that between DoD and the state department. At a minimum, jointness will require increased communication between the services and additional flexibility to allow for joint training and missions. It is also important to note that within the concept of transformation, the use of the term jointness stresses a level of interservice and interagency integration that extends above and beyond what has been already achieved or even intended by the term in previous DoD statements.

A second consistently emphasized aspect of transformation is the need for modification in the management and organization of military personnel. Such changes would streamline the armed forces and DoD and improve individuals' incentives to perform their job effectively. This includes a change in the organization of the forces to allow for greater speed and flexibility in deployment and requires closing unused or unneeded bases and making sure that U.S. troops are stationed in the locations that will maximize their responsiveness and deterrent force most effectively. The 1997 Report of the National Defense Panel noted that transformation had to include "new operational concepts to employ currently planned

forces in exploiting asymmetric advantages and reducing the number of required forces.” In addition, transformation necessitates modification in the incentive and compensation programs used by DoD, to encourage personnel to think innovatively and to reward them properly for the changed nature of their work in the 21st century (Hosek, 2003). Such reforms would not only aid in the physical transformation of DoD but would also contribute to a changed culture in the armed forces, by transforming how U.S. troops fight, how they understand their importance, how they live, and how they interact. For some defense officials, these changes in personnel organization are the most important and influential aspects of transformation. For example, Air Force Lt. Col. Steve Suddarth (2002) commented, “I tend to see the most critical element in the transformation as being how we manage people.” This statement suggests that transformation is essentially an effort to better train, motivate, and employ defense employees, both civilian and military.

Another integral aspect of transformation is the requirement for improved use and acquisition of technology within the fighting forces. Deputy Secretary Paul Wolfowitz (2002) commented that a large part of transformation involves a revolution in “the manner, speed, and effectiveness with which industrial and commercial tasks can be accomplished” and depends on “the impact of advances in technology in computing, communicating, and networking that taken together constitute an Information Revolution whose effects extend far beyond technology into the organization and even culture of the business and commercial worlds.” Furthermore, as the DoD National Defense Panel (1997) noted, “the military services will have to tap into rapidly advancing technologies to develop new military systems that can be applied within the framework of new operational concepts. . . .”

However, defense officials, including both Secretary Rumsfeld and Deputy Secretary Wolfowitz, are quick to remind the public that technological development is only one part of transformation and cannot by itself drive a revolution in military affairs. For example, Wolfowitz stated that “transformation is about more than what we buy or how much we spend on technology . . . transformation is about changing the military culture into one that encourages ‘innovation and intelligent risk taking.’” (Wolfowitz, 2002). Despite official DoD reports that downplay the importance of technology within transformation, it seems that given the radical changes and improvements that have recently occurred in information technology, technology is still a central factor in the rationale behind and the progress of transformation.

Along with the many cultural and organizational aspects, any definition of transformation also includes specific changes to the national security strategy. These changes are a response to the changed international security environment, both that which existed before 9/11 and that which has emerged afterward. Most dramatically, the *Quadrennial Defense Review* published in 2001 outlined the shift from the two-major-theater-war force planning toward a new approach that “emphasizes deterrence in four critical theaters, backed by the ability to swiftly defeat two aggressors in the same timeframe, while preserving the option for one major offensive to occupy an aggressor’s capital . . .” (Wolfowitz, 2002). In addition, transformation is associated with the transition from a “threat-based” strategy to a “capabilities-based” one, which “focuses less on who and where the threats are and concentrates more on what the threats might be—and how to deter and defend against them” (Garamone, 2002). Finally, integrated within the definition of transformation is a “new framework for assessing risk,” which includes force-management risks, operational risks, future challenges risks, and institutional risks. This redefined framework enables the military to better antici-

pate potential threats and to prepare for the future more efficiently, thus contributing to the original stated objectives of transformation, particularly the defense of the U.S. homeland and the protection of its capabilities.

Last, there is the question of how long transformation will take. DoD statements are extremely evasive when it comes to placing transformation within a specific time frame or even estimating how much time it will require. In general, transformation is not defined along a specific timeline. Instead, it is classified as a process that lacks a true endpoint. In fact, some defense officials speak of “institutionalizing transformation,” by which they mean the following: “Transformation is not a single event, but a process that needs to go forward in the future so that we are constantly in an evolution of transformation as time goes on” (McCarthy, 2001). This statement, when combined with the broad and continually expanding definitions of transformation discussed above, implies that transformation is not simply a temporary objective. Instead, it seems to be a more symbolic concept that embodies a permanent framework intended to initiate, support, and explain innovation and modernization within the armed forces. By classifying certain objectives as “transformational,” DoD is able to raise the importance of these objectives and to place them within a coherent framework.

This discussion of transformation has explored both the general and the more detailed descriptions of this process and has defined its core aspects as (1) an emphasis on cultural change; (2) the achievement of a new level of jointness; (3) the acquisition and application of new technologies; and (4) a shift in the defense strategy and the assessment of risk. More important than defining specific objectives, this in-depth look at what transformation has come to mean suggests that transformation is above all a tool used to unify and motivate a commitment to enacting change. As a result, it seems reasonable to predict that the meaning of transformation will continue to evolve—and even expand—as the capabilities of the armed forces and the challenges they face develop and multiply.

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